

REMARKS

Claims 20-32 are pending. By this Response, claims 20 and 28 are amended, a new title and Abstract are provided. Reconsideration and allowance based on the above amendments and following remarks are respectfully requested.

Title

The Office Action alleged the title is not descriptive. In response, Applicant's have amended the title to "EDGE-DIRECTED IMAGE SHARPENING METHOD" as recommended by the Examiner. Accordingly, withdrawal of the rejection is respectfully requested.

Abstract

The Abstract is objected to as making references to drawing symbols. In response, Applicants have provided a new Abstract to address this issue. Accordingly, withdrawal of the objection is respectfully requested.

Objection

Claim 28 is objected to as providing insufficient antecedent basis for the term "zoom ratio." In response, Applicants have amended claim 28 to recite "conversion ratio." Accordingly, withdrawal of the objection is respectfully requested.

Prior Art Rejection

Claims 20-33 stand rejected under 35 U.S.C. 102(b) as being anticipated by Someya et al. (U.S. Publication 2002/0030690). This rejection is respectfully traversed.

Claim 20 recites, *inter alia*, detecting an edge width of an edge portion of input image data; determining a localized conversion ratio based on the edge width and a ratio control amount, wherein the localized conversion ratio is localized to each one of at least three segments, wherein said at least three segments include a leading edge segment, a control edge segment and a trailing edge segment, in which the ratio control amount is positive in the leading edge segment, positive in the trailing edge segment and negative in the control edge segment of the edge portion.

Applicants respectfully submit that Someya fails to teach all of the above claimed features.

In the embodiment to the present invention image detection is performed on an image signal and various parts of the detected edge are processed differently. A conversion ratio is obtained from at least three distinct parts of the edge. A localized ratio is obtained separately for each of the separate parts of the edge based on the specific aspects of the section of the edge that is being represented. The different aspects of the edge can be represented by a trailing edge segment, a central edge segment, and a leading edge segment. The different localized ratios are representative of each various edge segments such that the trailing and leading edge segments have a ratio control amount which is positive and the central edge segment has a ratio control amount which is negative. The image signal is then processed by a conversion ratio from the localized ratios.

In summary, Someya teaches the determining a ratio using the following equation:

$$hc2 = n + (k \times \text{abs}(hd1)) \text{ if } 0.0 \leq r < 0.5 \text{ or } hc2 = n - (k \times \text{abs}(hd1)) \text{ if } 0.5 \leq r < 1.0$$

In Someya., an edge can be divided into first, second, and third segments as discussed at paragraph 209. However, a new ratio at each edge section is defined by the equation above using (n), where (n) is defined as the average value of the zoom ratio over the entire edge (the entire common rows of pixels) see paragraph 137.

Applicants respectfully submit that although Someya discloses dividing an edge into three sections, Someya teaches a different unique method and does not perform the claim processing method. In Someya's equations, the edge width is normalized and represented by (r) while (n) is defined as the average ratio across the edge. Applicants invention as recited in claim 20, refers to the edge with a ratio control amount, where the ratio control amount is positive for the leading and trailing edge and negative for the central edge and determining the localized conversion ration. The average value over the entire edge is not used.

Further, Someya does not determine a ratio control amount for each segment prior to determining the ratio conversion. Someya performs ratio conversion differently as indicated by the above equations. Furthermore, in Someya, a variable issue is applied to each section separately, but this variable is not determined as claimed by Applicants.

In view of the above, Applicants respectfully submit that Someya fails to teach each and every feature of independent claim 20 as required. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

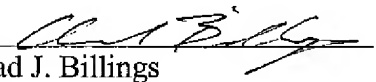
For at least the reasons above, it is respectfully submitted that claims 20-33 are distinguishable over the cited art. Furthermore, reconsideration and prompt allowance are earnestly solicited.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Chad J. Billings, Reg. No. 48,917, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By 
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